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TEXT: *C* *NOFORN* ENTIRE. DURING THE INTERNATIONAL JOINT CONFERENCE ON
 NEURAL NETWORKS, HELD 15 TO 19 JANUARY 90, IN WASHINGTON, DC, A
 PAPER ENTITLED SUBNEURAL FACTORS OF NEURAL NETWORKS WAS PRESENTED.
 THE PAPER WAS WRITTEN BY DJURO KORUGA OF THE MOLECULAR MACHINES
 RESEARCH CENTER, FACULTY OF MACHINE ENGINEERING, UNIVERSITY OF
 BELGRADE, 27 MARTA 80, 11000 BELGRADE, YUGOSLAVIA.

C *NOFORN* THE EMPHASIS OF THE RESEARCH WAS ON THE STUDY OF
 SUBNEURAL ACTIVITIES ON A MOLECULAR LEVEL. KORUGA HAS MADE A LINK
 BETWEEN SUBNEURAL NETWORKS BASED ON CYTOSKELETON AND TODAY'S MODELS
 OF NEURAL NETWORKS. HIS APPROACH SHOWS THAT THE SUBNEURAL NETWORK
 BASED ON CYTOSKELETON PLAYS AN IMPORTANT ROLE IN BOTH CONTROL
 MECHANISMS OF NERVE CELL GEOMETRY AND THE NEURAL NETWORK.

C *NOFORN* CYTOSKELETAL LATTICES INCLUDE PROTEIN POLYMER
 MICROTUBULES (MT), ACTIN, INTERMEDIATE FILAMENTS AND MORE THAN
 FIFTEEN OTHER PROTEINS. THE MAJOR NEURAL ARCHITECTURAL ELEMENTS OF
 MT'S ARE CYLINDRICAL POLYMERS, WHICH ALSO COMprise CILIA, MITOTIC
 SPINDLES AND OTHER ORGANELLES. MT'S ARE INTIMATELY INVOLVED IN
 DYNAMIC BIOLOGICAL ACTIVITIES, BUT MECHANISMS OF REAL TIME
 REGULATION AND CONTROL OF MT'S OR OTHER CYTOSKELETAL FILAMENTS ARE
 YET COMPLETELY UNKNOWN. OF ALL THE BIOLOGICAL STRUCTURES THAT
 PARTICIPATE IN BIOINFORMATION MOLECULAR PROCESSES, ONLY A SMALL
 NUMBER WORK ON SUCH A PRINCIPLE THAT CAN BE APPLIED TO THE COMPUTER
 SCIENCES. ONE OF THESE RARE BIOLOGICAL STRUCTURES IS A MICROTUBE,
 A SELF ORGANIZED ORGANELLE USUALLY CONSISTING OF 13 SUBUNITS. THESE
 CYTOLOGICAL STRUCTURES CREATE A NETWORK OF PROTOFILAMENTS IN THE
 CELL (NEURON), SIMILAR TO THE WAY IN WHICH NEURONS CREATE A NETWORK
 IN THE BRAIN.

C *NOFORN* KORUGA STATED THAT THE SYMMETRY THEORY AND MT STRUCTURE
 LEAD TO THE CONCLUSION THAT THE PACKING OF TUBULIN SUBUNITS IS EQUAL
 TO INFORMATION CODING. THIS MEANS THAT MT'S POSSESS CODE SYSTEMS
 WHICH CAN PROVIDE, IN THE NEURON, DYNAMIC INFORMATION ACTIVITIES.
 SUBNEURAL FACTORS BASED ON CYTOSKELETON AND MT'S PLAY AN IMPORTANT
 ROLE IN BOTH THE CONTROL MECHANISM OF NEURON GEOMETRY AND THE NEURAL
 NETWORK. BEARING IN MIND THAT GEOMETRIC NEURONS LOOK LIKE FRACTALS,

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THE RESEARCHERS BELIEVE THAT CYTOSKELETON AND MT'S ARE A FRACTAL ATTRACTOR OF THE NEURON. FROM THE SUBNEURAL FACTOR POINT OF VIEW, A NEW RESEARCH APPROACH CAN BE INTRODUCED IN THE FIELD OF NEURAL NETWORKS IN WHICH THE NEURON IS NOT JUST A SIMPLE OFF ON ELEMENT, BUT AN ELEMENT WITH A HISTORY.

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